PowerStay™ BY GEN/TRAN INDOOR MANUAL TRANSFER SWITCHES

For Models 200660, 300660, 301060, 501210, 601210

INSTALLATION AND OPERATING INSTRUCTIONS

***Warning**: Gen/Tran transfer switches should be installed by a professional electrician familiar with electrical wiring and codes, and experienced in working with generators. Gen/Tran accepts no responsibility for accidents, damages or personal injury caused by incorrect installation. These transfer switches are intended for surface or flush mounting INDOORS only.*

***Caution**: If using the generator and transfer switch for larger appliances, such as electric water heaters, clothes dryers, electric ranges and small air conditioners, check the labels on the appliances to be sure they do NOT exceed the rating of the generator. No appliance should have an amperage rating that exceeds the "GENERATOR MAIN" rating in the transfer switch.*

Thank you for purchasing the finest manual transfer switch available today. Gen/Tran's PowerStay® Manual Transfer Switches are designed to safely connect generators to load centers in homes and light commercial buildings (single phase only) for standby power applications. Features include:

- *Generator Main and Utility Main are mechanically interlocked preventing utility or generator power back feed*
- *Full branch circuit protection with Siemens® circuit breakers*
- *Dual wattmeters on models 200660, 300660, 301060, 501210 and 601210 help monitor and balance generator load, prolonging generator life*
- *Pre-assembled wire harness for easy connection to the load center*
- *Optional GFCI, Arc Fault or Surge Protection circuit breakers to further protect your home and electronic equipment (Available from Gen/Tran)*
- *Optional dust cover to keep debris and dust out of your transfer switch (Available from Gen/Tran PN 501069)*

Tools Needed for Installation:

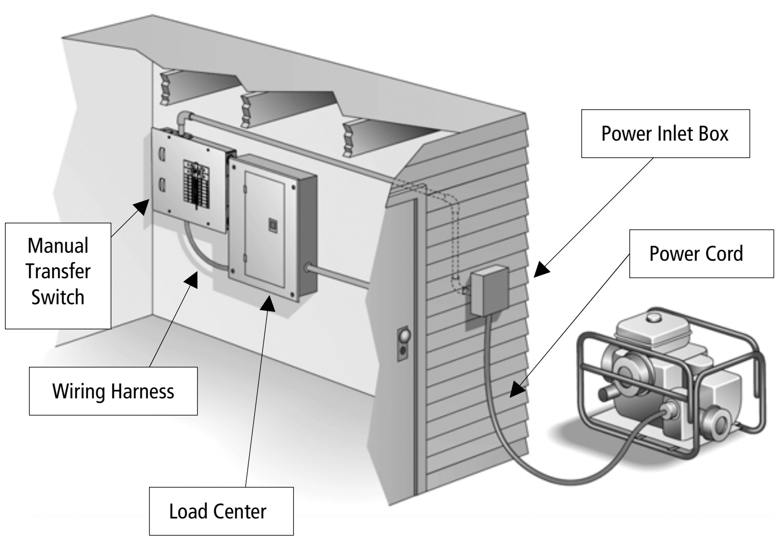
- ¼" and 11/32 nut drivers, 2-1/8" hole saw (if flush mounting)
- Straight blade and Phillips screwdriver
- Electric drill
- Wire cutter/stripper

Other Items Needed:

- New 2-pole, 240V Breaker to mount in main load center – amperage to match utility breaker (see specifications Table I for Utility Main Breaker size – should be manufactured by same as Main load center).
- Anchors and screws to mount switch to wall
- PVC cement (to secure connectors onto flexible conduit)
- Additional wire connectors if switch is "hard-wired". See Table 2 for correct size.
- May need Arc-fault, GFCI or Surge protection circuit breakers. If Arc-fault, GFCI or Surge protection circuit breakers are used as the branch circuit protector in the main load center, they MUST be used in the manual transfer switch. See Table 3 for compatible breakers. (Available through Gen/Tran).
- Power Inlet Box – for "hard-wired" installations. (Available through Gen/Tran).
- Power Cord to connect generator to switch or power inlet box. (Available through Gen/Tran).

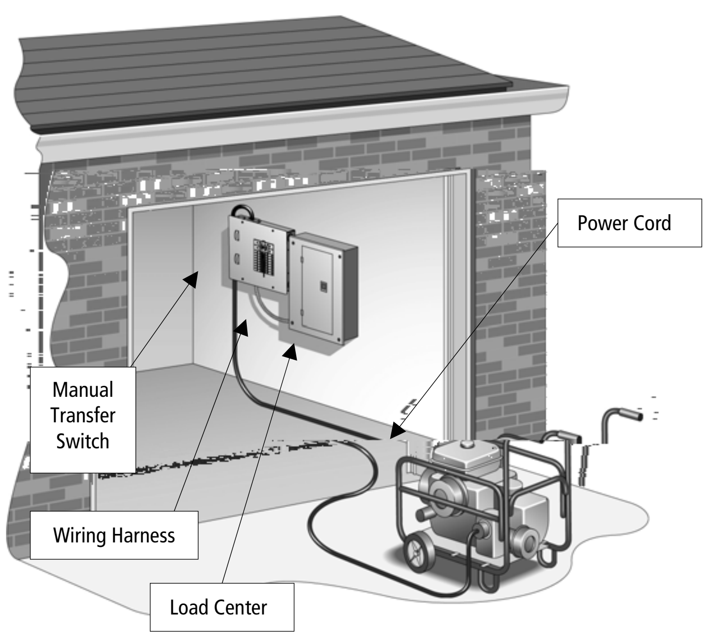
Typical Basement Installation

Hardwired to generator using a power inlet box



Typical Garage Installation

Plug-in cord connection



Planning Your Installation:

1. Determine the appliances, circuits or equipment you want to operate with generator power during a power outage, such as:
   - Furnace
   - TV / Radio
   - Refrigerator
   - Cordless Telephone
   - Freezer
   - Garage Door Opener
   - Microwave Oven
   - Water Heater
   - Well Pump
   - Security System
   - Sump Pump
   - Computer, Fax and Printer
   - Lighting
   - Range
2. Determine the amps required for each appliance using the circuit breaker rating in the load center. No appliance should have an amperage rating that exceeds the "GENERATOR MAIN" rating in the transfer switch. The total amperage of all circuits can exceed the generator rating, but not all circuits will be able to be used concurrently.
3. Assign the circuit # in the load center and in the manual transfer switch, matching the size of the circuit breaker in the load center to the circuit breaker in the transfer switch. Once you've determined which circuits you want to connect and the appropriate amperage, you will be ready to begin installing the manual transfer switch.

Installation Procedure:

IMPORTANT: Please read this entire procedure before beginning installation. WARNING: For SAFETY, turn OFF the MAIN circuit breaker in the load center BEFORE starting installation. Remember, the wiring ahead of the MAIN is still HOT, even when the main circuit breaker is off.

For Surface- Installation – "Plug-in" Generator Connection (Models 200660, 300660, 301060, 501210):

1. Transfer switch can be installed on either the left or right side of the main load center. Transfer switch is provided with 21-1/2" of flexible conduit. The connection to the main load center, using the provided wire harness, must be made through one of the three (3) knockouts (KO's) provided in the bottom or lower sides of the manual transfer switch. The wire harness should enter the main load center in one of the bottom or lower side knockouts.

2. Remove the cover of the main load center and the transfer switch. The conduit may be cut to a convenient length. Glue connectors on ends with PVC cement. After attaching the flexible conduit to both boxes through the KOs, hold the transfer switch away from the load center against the wall on which it is to be mounted and mark the keyholes on the wall for the anchoring screws. Be sure NOT to stress the flexible conduit, as it will break. [*NOTE: The blue Electrical Non-Metallic Tubing (ENT) is UL Listed and recognized by the National Electrical Code (NEC). However, it generally cannot be used in buildings that exceed (3) floors above grade. While the NEC does allow its use for this application, local codes and inspectors may prohibit its use. If this situation exists, call 888-GEN-TRAN to request a length of flexible metal conduit (FMC) to use in its place.]*

3. After mounting the transfer switch to the wall, you are ready to terminate the wires in the manual transfer switch. Fish the bundle of wires provided through the conduit. Strip each wire in the wire harness approximately 5/8" and insert and tighten the wires to the correspondingly marked circuit breakers in the transfer switch. As you attach each marked wire to the circuit breaker, write on the label on the cover of the transfer switch with the appliance on that circuit per the planning worksheet. The unmarked BLACK wires in the harness are inserted into the Utility 2-pole breaker in the transfer switch. Attach the WHITE wire to the insulated neutral bar located between the two meters inside the transfer switch, and attach the GREEN wire to the ground bar located in the lower left corner of the transfer switch. Reinstall the cover to the transfer switch.

4. RECHECK TO BE SURE THE MAIN CIRCUIT BREAKER HAS BEEN TURNED OFF. The wires from the harness entering the load center can now be terminated. Remove the wires of the appliances/loads that have been assigned to circuits in the transfer switch from the breakers in the load center. Cut the harness wires to a convenient length and strip off approximately 5/8" and connect with the provided wire connectors (see wire connector chart) using the appropriate labeled wire from the transfer switch. The unmarked BLACK wires in the harness are to be inserted into the NEW 2 pole breaker (as required in the Other Items Needed section). Remove two adjacent single pole breakers from which the appliance/load wires were removed. The 2-pole breaker should be located in a bus bar location where two adjacent full size single pole circuit breakers were removed. Terminate the WHITE and GREEN wire in the harness in an open position in the Neutral and Ground bars respectively. If there is no separate ground bar, insert the GREEN wire into an open position in the NEUTRAL bar, and tighten.

5. Reinstall the load center cover, and turn ON the MAIN breaker. Then turn ON ALL circuit breakers in both boxes. Turn on the UTILITY MAIN in the manual transfer switch. Check that power is restored to all appliances.

For Surface Installation – "Hard-wired" Generator Connection (All Models):

1. After removing the cover from the transfer switch and before attaching the harness, remove the three screws that secure the power inlet to the top of the transfer switch. Pull the power inlet out of the transfer switch, and loosen the four screws that secure the wires in the power inlet. Discard the power inlet. Secure the provided cover over the hole where the power inlet was removed using the three screws securing the power inlet. (Model 601210 does not have a power inlet, so the cover is attached at factory.)

2. After attaching the harness and securing the transfer switch to the wall as described in STEPS 1 & 2 in the above section, the wiring to the generator can be done. This wiring should only be done through one of the four KO's on the top or upper ends of the transfer switch. The four wires removed from the power inlet should be connected together with the appropriate wires coming from the generator using installer provided wire connectors. **Notes on Model 601210**: The current transformers (CTs) on this unit are "floating" and therefore, installer must pass the hot leads from the incoming generator through the hole in the CT before inserting the wire into the "GEN MAIN" breaker. There is one CT per pole. Install ground wire into unused hole in the ground bar, and install neutral wire into neutral bar. See Typical Hardwiring Diagram on Page 4.

3. The remainder of the installation, as described in STEPS 3, 4 & 5 above, can now be completed.

For Flush-Mount Installation – New Construction:

1. The transfer switch should be installed at the same time as the main load center in adjacent stud openings in the wall. Remove the six screws that secure the interior assembly of the transfer switch to the switch enclosure. Remove the power inlet as described STEP 1 of in the "Surface Mount – Hardwiring" section above, except model 601210.

2. The width of the transfer switch enclosure is 14.25"; it should fit between standard 16" wall studs. Slots on the sides of the box allow the enclosure to be mounted to the studs. Install the enclosure with nails or screws; be sure the front edge of the box extends forward to be flush with the thickness of the finished drywall. Adjustment is difficult once the interior assembly is reinstalled.

3. The harness is installed by drilling a 2 1/8" diameter hole in the stud between the load center and the transfer switch. The exact location is determined by which KO's in each box are selected. The ideal location is the lower side corner of the load center and the bottom KO on the transfer switch. After removing the KO's and drilling the hole, cement the connectors and install the flexible conduit.

4. After the walls have been finished and painted (if applicable), reinstall the interior assembly of the transfer switch and complete the wiring as described in STEP 2 of "Surface Installation – Hardwired" and STEPS 3, 4 & 5 in the "Surface Installation – Plug-In" section above.

For Flush-Mount Installation – Retrofit with Walls Finished:

1. Remove the cover of the main load center. Ensure that there are no wires going thru the side of the load center into the space where you want to mount the transfer switch. Use a "stud finder" to determine if you have at least 14.25" between the studs to mount the transfer switch.

2. After determining where to install the transfer switch (keep in mind the length and flexibility of the conduit provided and where the generator wires will enter), remove the cover, the power inlet and the six screws that secure the interior of the transfer switch as described in STEP 1 of the "Surface Installation – Hardwired" section above. Hold the transfer switch enclosure in the desired position on the wall and mark the exact dimensions of the box. Set the enclosure aside and cut the hole in the drywall. Remove a 1" or 1-¼" KO in the lower side of the load center. Drill a pilot hole through the stud in the center of the KO removed. Then, reach down inside the wall and drill a 2 1/8" diameter hole in the stud using the pilot hole as a guide. Assuming you are mounting the transfer switch above the bottom corner of the load center, remove the bottom KO in the transfer switch, cement the connectors on the flexible conduit, and install the flexible conduit and fasten to both cabinets with locknuts.

3. It is recommended that only the four KO's in the upper portion of the transfer switch enclosure be used for entry of the generator wires. If this is impractical in your installation, other holes may be drilled on the top, bottom or back to accommodate the incoming wires from the generator.

4. Insert the transfer switch enclosure box into the hole in the drywall and install with nails or screws; be sure the front edge of the box extends forward to be flush with the thickness of the finished drywall. Adjustment is difficult once the interior assembly is reinstalled.

5. Reinstall the interior assembly of the transfer switch and complete the wiring as described in STEP 2 of "Surface Installation – Hardwired" and STEPS 3,4 and 5 in the "Surface Installation – Plug-In" section above.

TABLE 1 - SPECIFICATIONS:

MODEL #	200660	300660**	301060	501210	601210
UTILITY MAIN breaker, Incl.	60 Amp	60 Amp	60 Amp	100 Amp	100 Amp
GEN MAIN breaker, included	20 Amp	20 Amp	30 Amp	50 Amp	60 Amp
Max Load per Circuit	As marked	As marked	As marked	As marked	As marked
Max Load Combined	20 Amp	30 Amp	30 Amp	50 Amp	60 Amp
Max Watts @ 250 Volt	5000	N/A	7500	12,500	15,000
Max Watts @ 125 Volt	5000	3750	7500	12,500	15,000
Max 1-pole Circuits *	16	16	16	16	16
Max 2-pole Circuits *	8	0	8	8	8
NEMA Config. of Inlet	L14-20	L5-30	L14-30	CS6375	N/A
Min. gauge Cord Size	12/4 wire	10/3 wire	10/4 wire	6/4 wire	none

***Note:** If Ground Fault Circuit Interrupters (GFCI) circuit breakers, Arc Fault Circuit Interrupters, or Surge Protector Circuit Breakers were used as the branch circuit protector in the main load center, they MUST be used in the transfer switch. Because these circuit breakers typically take up more than one space, the overall maximum number of circuits may be reduced from the number shown. Contact Gen/Tran for more information on these circuit breaker types.

****Note on Model 300660**: This unit is designed and rated for 125 volt loads only; and single pole circuit breakers should be used in this unit. Total load must not exceed 3750 watts.

Operating Your PowerStay® Manual Transfer Switch and Generator:

Transferring from Utility Power to Generator Power:

1. Move generator outdoors. **WARNING: Operating a generator indoors or in a garage could result in injury or death**.
2. Insert the male connector of the Power Cord into the correct outlet on the generator.
3. Plug in the female connector of the Power Cord to the Power Inlet Box OR the inlet on the top of the PowerStay Manual Transfer Switch. Turn all circuit breakers in the transfer switch to their OFF position.
4. Start the generator outdoors, following the procedures described in the generator's owner's manual furnished by the manufacturer. Turn on the GENERATOR MAIN circuit breaker in the transfer switch. Turn ON circuit breakers in the manual transfer switch one at a time alternating from phase "A" and phase "B". If meters are provided in your unit, watch as you turn on successive circuits that the meters do not continuously exceed the maximum wattage of the generator. It may be necessary to alternate the use of larger loads (furnace motors, well pumps, freezers, etc.) to avoid overloading the generator. Try to "balance" the loads on each "phase" (A and B). To promote generator life, loads should be balanced so that the wattage reading on each meter is within about 1000 watts of the other.
5. Test your circuits by using the wattmeters or determine wattage from that shown on each appliance. Make a note of any excessive loads which must be removed from a given circuit during generator operation in an emergency.

Transferring from Generator Power to Utility Power:

1. On the transfer switch, turn Generator MAIN breaker OFF and turn Utility MAIN breaker ON.
2. Turn ON any branch circuit breakers in the transfer switch that are OFF.
3. Shut down the generator, following the procedures in the generator Owner's Manual.
4. Unplug the power cord from the generator and then the power inlet.
5. Cool off the generator and store in a dry, secured location.
6. To ensure that your generator will work properly when you need it, it is important to start and run your generator under load regularly and keep the tank filled with fresh fuel. Perform the above steps at least ONCE A MONTH to keep the generator properly "exercised." It is not necessary to turn off any circuits in the MAIN load center when supplying generator power to the transfer switch.

TABLE 2 - Wire Connector Usage Chart:

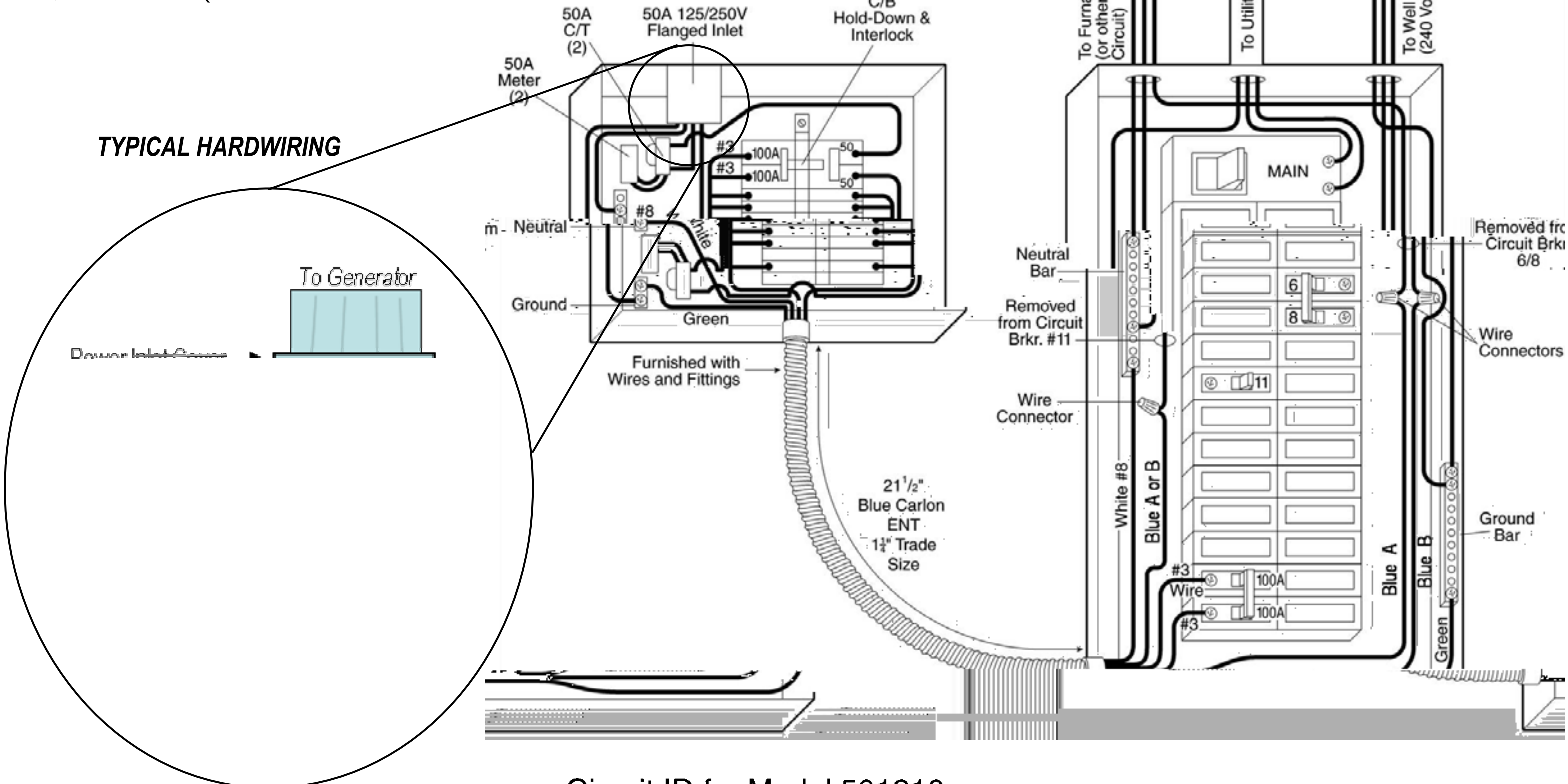
WIRE SIZE	12	10	8	6
14	Red	NA	NA	NA
12	Red	Red	NA	NA
10	NA	Red	NA	NA
8	NA	NA	Blue	Blue
6	NA	NA	Blue	Blue

TABLE 3 – Compatible Circuit Breaker Types:

- Siemens QP, QT, QPH, HQP, QPF, QPHF, QFP, QE, QEH
- Westinghouse Series BD, BR, BQ, GFC
- Challenger Type A, C, HAGF
- Square D Series HOM
- GE Series THQL

Compatible GFCI, Arc-Fault/ Surge Protection Circuit Breakers:

- Siemens: QPF (GFCI), QAF (Arc Fault), QP (Surge Protector)



Circuit ID for Model 501210

A4	20A	A6	15A
A5	20A	A3	20A
B4	15A	B3	20A
B5	20A	B6	15A
A1	50A	A2	30A
A7	—	A8	—
B1	50A	B2	30A
B7	—	B8	—

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